

Unit 6 Review of Operations

$$\textcircled{1} \frac{(x-3)(x+3)}{(x+3)(x-2)} = \boxed{\frac{x-3}{x-2}} \quad \textcircled{3} \frac{y^2(x-4)(x+4)}{y(x+5)(x+4)} = \boxed{\frac{y(x-4)}{(x+5)}}$$

$$\textcircled{2} \frac{a(a+3)^2}{a(a+3)(a-1)} = \boxed{\frac{a+3}{a-1}} \quad \textcircled{4} \frac{(x-3)(x^2+3x+9)}{(x+2)(x-1)} = \boxed{\frac{x^2+3x+9}{-7-2x}}$$

$$\textcircled{1} \frac{3(x+5)^2}{2(x-5)} \cdot \frac{8x}{3(x-5)(x+5)} = \boxed{\frac{4x(x+5)}{(x-5)^2}} \quad \textcircled{2} \frac{x(x-1)(x+2)}{(x-8)(x+2)} \cdot \frac{2(x-8)}{5(x-1)} = \boxed{2x^2}$$

$$\textcircled{3} \frac{x+3}{(x-2)(x-4)^3} + \frac{2}{3(x-2)(x-4)} = \frac{3x+9}{3(x-2)(x-4)} + \frac{2x-8}{3(x-2)(x-4)} = \boxed{\frac{5x+1}{3(x-2)(x-4)}} \quad \boxed{\frac{1}{(x-3)(x-4)}}$$

$$\textcircled{4} \frac{x(x-4)}{(x-3)(x-6)} - \frac{x-2}{(x-6)(x-4)(x-3)} = \frac{x^2-4x}{(x-3)(x-6)(x-4)} + \frac{x^2+5x+6}{(x-3)(x-6)(x-4)} = \frac{x-6}{(x-3)(x-6)(x-4)} = \frac{1}{(x-3)(x-4)}$$

$$\textcircled{5} \frac{(m+1)^2}{m(m+4)} \cdot \frac{(m-4)(m+4)}{(m-4)(m+1)} \cdot \frac{m(m-1)}{(m-3)(m+1)} = \boxed{\frac{m-1}{m-3}}$$

$$\textcircled{6} \frac{(x+5)(x+7)}{(x-4)(x+7)} + \frac{(x-3)(x-4)}{(x-4)(x+7)} = \frac{x^2+12x+35}{(x-4)(x+1)} + \frac{x^2-7x+12}{(x+7)(x-4)} = \frac{2x^2+5x+47}{(x+7)(x-4)}$$

$$\textcircled{7} \frac{4}{(x-3)(x-2)} - \frac{3}{(x-3)^2} = \frac{4x-12}{(x-3)^2(x-2)} + \frac{-3x+6}{(x-3)^2(x-2)} = \boxed{\frac{x-6}{(x-3)^2(x-2)}}$$

$$\textcircled{8} \frac{x-1}{(x-5)(x-4)} + \frac{4x-5}{(x-3)(x-5)} + \frac{-3(x-2)(x-9)}{(x-3)(x-4)(x-5)} = \frac{x^2-4x+3 + 4x^2-21x+20 - 3x^2+21x-30}{(x-3)(x-5)(x-4)}$$

$$\textcircled{9} \left(\frac{m+n}{m-n} - \frac{m-n}{m+n} + \frac{-4n^2}{(m-n)(m+n)} \right) \div \left(\frac{m-n}{m+n} + \frac{m+n}{m-n} \right) = \boxed{\frac{2x^2-4x-7}{(x-3)(x-5)(x-4)}}$$

$$\left(\frac{m^2+2mn+n^2}{(m-n)(m+n)} + \frac{m^2+2mn-n^2}{(m-n)(m+n)} + \frac{-4n^2}{(m-n)(m+n)} \right) \div \frac{2m}{m+n} =$$

$$\frac{4n(m-n)}{4mn-4n^2} \cdot \frac{m+n}{2m} = \frac{4n}{2m} = \boxed{\frac{2n}{m}}$$